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EXAMINER	
PAUL, DISLER	
ART UNIT	PAPER NUMBER
2615	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,769	JANG ET AL.	
	Examiner	Art Unit	
	Disler Paul	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☒ Claim(s) *6* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/16/05 and 2/17/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 6 recites the limitation "data decoding block". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1,2,4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al.("US 2002/0161462 A1") and Okubo et al.("2001/0014621 A1").

Re claim 1, Fay et al. disclose an object-based three-dimensional (3-D) audio server system comprising ("*fig.2-8; page 4[0046]line 3-6:computer program in which 3-D instruction is carried out*"): an audio input unit receiving object-based sound sources through various input devices("*fig.2-variety audio sources (212) being inputted to input device (204);page 5[0056] line 1-3 and 8-10*"); an audio editing and producing unit separating the sound sources applied through the audio input unit into object sounds according to a user's selection ("*page 1[0003] line 1-7; Fig.2(204,206,224)*"), and converting them into 3-D audio scene information ("*page 3[0041] line 6-9-scenes changes has corresponding audio representations in a game*"); and an audio encoding unit encoding 3-D information and object signals of the 3-D

audio scene information converted by the audio editing and producing unit so as to transmit them through a medium("*page 2[0023] line 8-11*"). However, Fay et al. fail to disclose the sound sources being applied through the audio input unit into background sounds, but Okubo et al. disclose a video game in which an audio editing/producing unit separate sound sources applied through the audio input into background sounds according to a user's selection ("*Fig.5 (background-122,201f);fig.1(122) with controller (20)*") for the purpose of providing a better feeling of presence in the game. Thus, combined the teaching of Fay et al. and Okubo et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Fay et al. by incorporating the audio editing/producing unit separate sound sources applied through the audio input into background sounds according to a user's selection for the purpose of providing a better feeling of presence in the game as taught by Okubo et al.

Re claim 2, the combined teaching of Fay et al. and Okubo et al. as a whole, teach the system according to claim 1, wherein sound sources selected by the user from among the sound sources that have been applied through the audio input unit are processed into object sounds ("*Page 5[0064]; page 5[0075] line 9-11-among sound selected from(402)*"), and other sound sources not selected by the user are processed into background sounds("*Okubo,Fig.5 (background-122,201f);fig.1(122) with controller (20)*").

Re claim 4, the system according to claim 1, wherein the audio editing/producing unit includes: a router/audio mixer dividing the sound sources applied in the multi-track format into a plurality of sound source

objects ("*fig.4(402,414,422 ;page 6[0069] line 9-11*") and background Sounds ("*Okubo,Fig.5 (background-122,201f);fig.1(122) with controller (20)*");a scene editor/producer editing an audio scene and producing the edited audio scene by using 3-D information and spatial information of the sound source objects and background sound objects divided by the router/audio mixer("*fig.4(416,418,448);page 6[0076] line 5-10-particular events/scene is edited/produced*"); and a controller providing a user interface so that the scene editor/producer edits an audio scene and produces the edited audio scene under the control of a user("*page 4[0052] line 5-14;fig.8*").

Re claim 5, the system according to claim 1, wherein the audio encoding unit includes: a data encoding block encoding each set of data divided into background sound objects, sound source objects, and audio scene information output from the audio editing/producing unit("*page 3[0040]-encoded sound object with corresponding scene information; fig.4(204,206)*"); and a multiplexer multiplexing object data of the background sound, data of the sound sources, and data of the audio scene information encoded by the data encoding block into a single signal, and transmitting the same("*fig.4(440,442); page 7[0081] line 9-12-multiplex plurality of channels(440) to single (442)*").

Re claim 6, the system according to claim 5, wherein the data decoding block includes: an audio object encoder encoding the sound objects ("*Page 2[0024] line 7-9*"); an audio scene information encoder encoding the audio scene information ("*page 3[0025]*"); and a background sound object encoder encoding the background sounds ("*Okubu,Fig.1.(122)-backgound sound encoded in computer format for processing*").

Re claim 7, Fay et al. discloses a method of controlling an object-based 3-D audio server system comprising: separating sound source objects from among sound sources according to a selection by a user and inputting 3-D information for each sound source object separated from the applied sound sources("*page 1[0003] line 1-7; Fig.2(204,206,224)*") ; and encoding and multiplexing the audio scene to transmit the encoded and multiplexed audio signal through a medium ("*page 2[0023] line 8-11*"). However, Fay et al. fail to disclose the mixing the sound sources other than the separated sound source object into background sounds, but, Okubo et al. disclose a video game in which the mixing the sound sources other than the separated sound source object into background sounds("*Fig.5 (background-122,201f);fig.1(122) with controller (20)*") for the purpose of providing a better feeling of presence in the game. Thus, combined the teaching of Fay et al. and Okubo et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Fay et al. by incorporating the mixing the sound sources other than the separated sound source object into background sounds for the purpose of providing a better feeling of presence in the game as taught by Okubo et al.

The combined teaching of Fay et al. and Okubu et al. as a whole, further disclose forming the sound source objects, the 3-D information, and the background sound objects into an audio scene ("*page 3[0041] line 6-9-scenes changes has corresponding audio representations in a game*")

Re claim 8, the method according to claim 7, wherein each of the sound source objects further includes 3-D information for a relative sound source

object by grouping the sound source objects that have to be controlled by groups ("*Page 5[0064]; page 5[0075] line 9-11; page 4[0046] line 3-6 and corresponding groups of fig.4 (406(1) to 406(3)*").

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al.("US 2002/0161462 A1") and Okubo et al.("2001/0014621 A1") and further in view of Leung et al. ("2005/0080616 A1") and Lin et al.("20030053680 A1").

Re claim 3, the combined teaching of Fay et al. and Okubo et al. as a whole, disclose the system according to claim 1 with a single channel microphone with a single microphone("*page 14[0187] line 4*");, However, Fay et al. and Okubo et al. as a whole, fail to disclose the audio input unit further includes: a combination of sound source input devices having: a stereo microphone with at least two microphones; a dummy head microphone whose shape is like a head of a human body; an ambisonic microphone receiving the sound sources after dividing them into signals and volume levels, each moving with a given trajectory on 3-D X, Y, and Z coordinates; and a multi-channel microphone receiving multitrack audio signals;, However, Leung et al. disclose of a system for recording three-dimensional auditory scene in which the device further include a combination of sound source input devices having: a stereo microphone with at least two microphones ("*page 1[0004] line 5-6; page 1[0008] line 11-14")* a dummy head whose shape is like a head of a human body ("*page 1[0008]*"); an ambisonic microphone receiving the sound sources after dividing them into signals and volume levels, each moving with a given trajectory on 3-D X, Y, and Z coordinates ("*page 1[0005]*"); and a multi-channel microphone receiving multitrack audio signals ("*page 1[0008]*

line 3"); for the purpose of recording sound signals, thus, taking the combined teaching of Fay et al. and Okubo et al. and now Leung et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Fay et al. by incorporating the a stereo microphone, a dummy head microphone, an ambisonic microphone, a multi-channel microphone for the purpose of recording sound signals.

The combined teaching of Fay et al. and Obuku et al. and Leung et al. as a whole, teach the above, However, they fail to teach of the source separation/3-D information extractor separating the sound sources applied from the combination of the sound source input devices by objects, and extracting 3-D information. However, Lin et al. teach of a three-dimensional sound creation in which there exist the source separation/3-D information extractor separating the sound sources applied from the combination of the sound source input devices by objects, and extracting 3-D information ("*page 2[0015]; fig.1(26,28)*") for the purpose of matching sound signal with corresponding video object data. Thus, taking the combined teaching of Fay et al. and Obuku et al. and Leung et al. and *now* Lin et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Fay et al. and Leung et al. as a whole, by incorporating the a three-dimensional sound creation in which there exist the source separation/3-D information extractor separating the sound sources applied from the combination of the sound source input devices by objects, and extracting 3-D information for the purpose of matching sound signal with corresponding video object data as taught by Lin et al.

5. Claims 9,13-16,18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al.("US 2002/0161462 A1") and Okubo et al.("2001/0014621 A1") and Meij et al.("US 2002/0035334 A1").

Re claim 9, Fay et al. disclose an object-based three-dimensional audio terminal system comprising: an audio decoding unit demultiplexing and decoding a multiplexed audio signal including object sounds, and scene information applied through a medium("*page 5[0058] line 5-9;page 5[0064]-both sound/scene information are decoded to original interpretable format so to be outputted*"); an audio scene-synthesizing unit with the object sound and scene information("*fig.4-5:(442), col.7[0082]*") decoded by the audio decoding unit into a 3-D audio scene ("*fig.5(444)-decoded so to be outputted*") under the control of a user ("*page 1[0009] line 4 and line 6-7*"); and an audio reproducing unit reproducing the 3-D audio scene synthesized by the audio scene-synthesizing unit ("*fig.2(224);page 5[0058] line 6-9*"). However, Fay et al. fail to disclose the decoding unit for decoding audio signal into background sounds, but Okubu et al. disclose a video game in which the decoding unit for decoding audio signal into background sounds ("*fig.1(163)-sound program info is decoded/converted to original format so to be outputted*"), for purpose of putting enthusiasm into the game. Thus, taking the combined teaching of Fay et al. and Okubu et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Fay et al. by incorporating the decoding unit for decoding audio

signal into background sounds for purpose of putting enthusiasm into the game.

The combined teaching of Fay et al. and Okubu as a whole, teach the above, However, Fay et al. and Okubu et al. as a whole, fail to disclose the selectively synthesizer in which a user control unit providing a user interface so as to selectively synthesize under the control of the user; But Meij et al. disclose an electrocardiogram in which there exist a selectively synthesizer in which a user control unit provide a user interface so as to selectively synthesize under the control of the user ("*fig.4(306,308);page 4[0036] line 18-20;page 4[0037] line 7-10*") for the purpose of conditioning the synthesizer to operate in normal mode. Thus, taking the combined teaching of Fay et al. and Okubu et al. and *now* Meij et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Fay et al. by incorporating the selectively synthesizer in which a user control unit providing a user interface so as to selectively synthesize under the control of the user for the purpose of conditioning the synthesizer to operate in normal mode as taught by Meij et al.

Re claim 13, the system according to claim 9, wherein the audio reproducing unit includes: an acoustic environment equalizer equalizing the acoustic environment between a listener and a reproduction system in order to accurately reproduce the 3-D audio transmitted from the audio scene synthesizing unit("*Fay, page 2[0024] line 5-7-volume adjuster*"); and an audio signal output device outputting a 3-D audio signal equalized by the acoustic environment equalizer("*Fay,page 5[0058] line 7*") ; However, the recently

combined teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, fail to teach of the an acoustic environment corrector calculating a coefficient of a filter for the acoustic environment equalizer's equalization, and correcting the equalization by the user, But, Lin et al. disclosed of the acoustic environment corrector calculating a coefficient of a filter for the acoustic environment equalizer's equalization, and correcting the equalization by the user ("*page 3[0029] line 4-5 and line 13-24*") for the purpose of producing 3-dimensionals audio signals thus , taking the combined teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Fay et al. and Okubu et al. and Meij et al. as a whole, by incorporating the acoustic environment corrector calculating a coefficient of a filter for the acoustic environment equalizer's equalization, and correcting the equalization by the user for the purpose of producing 3-dimensionals audio signals.

Re claim 14, the system according to claim 9, wherein the acoustic environment equalizer further includes: means for equalizing the environmental characteristics between the listener and the audio terminal system in order to accurately reproduce 3-D audio ("*Fay,page 2[0024] line 5-7-volume adjuster*"); however, the recently combined teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, fail to disclose the means for canceling crosstalk transmitted to right and left ears of the listener; and means for correcting the characteristics of the acoustic environment automatically, according to the information on speakers of the audio system, a listening room's construction, and arrangement of the speakers, transmitted from the acoustic environment corrector. But, Lin et al. disclosed of the

acoustic environment corrector calculating a coefficient of a filter for the acoustic environment equalizer's equalization, and correcting the equalization by the user ("*page 3[0029] line 4-5 and line 13-24*") for the purpose of producing 3-dimensionals audio signals thus , taking the combined teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Fay et al. and Okubu et al. and Meij et al. as a whole, by incorporating the means for canceling crosstalk transmitted to right and left ears of the listener; and means for correcting the characteristics of the acoustic environment automatically for the purpose of producing 3-dimensionals audio signals.

Re claim 16, with respect to a method of controlling an object-based 3-D audio terminal system has been analyzed and rejected with respect to claims 1,9,13 as a whole.

Re claim 18, the method according to claim 16, with the outputting the audio scene has been analyzed and rejected with respect to claim 13.

Re claim 19, with respect to an object-based three-dimensional audio system has been analyzed with respect to claim 1,9 as a whole.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al.("US 2002/0161462 A1") and Okubo et al.("2001/0014621 A1") and Meij et al.("US 2002/0035334 A1") and further in view of Coles et al. ("US 2002/0103554 A1").

Re claim 10, The combined teaching of the combined teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, teach the system according to claim 9, with the audio decoding unit includes background sound object data, sound source data, and audio scene information data, However, the combined teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, fail to disclose of the demultiplexer demultiplexing the data applied through the medium and multiplexed to separate the audio components into background sound object data, sound source data, and audio scene information data; However, Coles et al. disclose of the three-dimensional interactive system in which the demultiplexer demultiplexing the audio components applied through the medium and multiplexed to separate them into their separate audio components ("*Fig.3; page 3[0037]*") for the purpose of outputting the audible sound or track corresponding to each audio component. Thus, taking the combined teaching of Fay et al. and Okubu et al. and Meij et al. and now Coles et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, by incorporating the demultiplexer demultiplexing the audio components applied through the medium and multiplexed to separate them into their separate audio components for the purpose of outputting the audible sound or track corresponding to each audio component as taught by Coles et al.

The combined teaching of Fay et al. and Okubu et al. and Meij et al. and now Coles et al. as a whole, further teach of the decoder decoding the background sound object data, the sound source data, and the audio scene information data separated by the demultiplexer("*Fig.3/(15);all separate components is decoded/converted to interpretable mode at output*").

7. Claims 11 ,17,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al.("US 2002/0161462 A1") and Okubo et al.("2001/0014621 A1") and Meij et al.("US 2002/0035334 A1") and further in view of Lin et al. (2003/0053680 A1").

Re claim 11, the system according to claim 9, wherein the audio scene-synthesizing unit includes a processor ("*page 7[0083] line 7-10*") under the control of the user ("*fig.8 (834,836); page 1[0008] line 4*"); and an object mixer mixing the sound source objects processed by the sound source object processor with the background sound objects decoded by the audio decoding unit to output results ("*page 2[0018] line 1-5: many sounds(backgrounds/objects) being outputted*"); However, the combined teaching of Fay et al. and Okubu et al. and Meij et al. as a whole, fail to disclose the processor further include an object processor receiving the background sound objects, the sound source objects, and the audio scene information decoded by the audio decoding unit to process the sound source objects and audio scene information according to a motion , but, Lin et al. discloses a sound imaging system in which the processor further include an object processor receiving, the sound sources, and the audio scene information to process the sound sources and audio scene information

according to a motion; a relative location between the sound source objects, and a three-dimensional location of the sound source objects, and spatial characteristics ("*page 2[0020] line 1-4; fig.1/(12);page 2[0017] line 11;page 2[0022]; page 2[0024] line 1-6*") for the purpose of creating a positional enhanced audio data. Thus, taking the combined teaching of Fay et al. and Okubu et al. and Meij et al. and now Lin et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify Fay et al. by incorporating the object processor receiving the sounds, and the audio scene information to process the sound source object and audio scene information according to a motion; a relative location between the sound source objects, and a three-dimensional location of the sound source objects, and spatial characteristics for purpose of creating a positional enhanced audio data as taught by Lin et al.

Re claim 17, the method according to claim 16, with the synthesizing the audio scene has been analyzed and rejected with respect to claims 11,12 as a whole.

Re claim 20, a method of controlling an object-based 3-D audio terminal system, has been analyzed and rejected with respect to claims 1,2,9,11-13 as a whole.

8. Claims 12,15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al.("US 2002/0161462 A1") and Okubo et al.("2001/0014621 A1") and Meij et al.("US 2002/0035334 A1") and further in view of Lin et al. (2003/0053680 A1") and further in view of Katayama et al. ("7,133,730 B1")

Re claim 12, the system according to claim 9 with the sound processor, However, the combined teaching of Fay et al. and obuku et al. and Meij et al. as a whole, fail to disclose the processor further includes: a motion processor analyzing a plurality of sound source data and the audio scene information, calculating a location of each sound source object moving with its particular trajectory, and modifying its trajectory under the control of the user through the user control unit; a 3-D sound localization processor providing each sound source object having a location defined on 3-D coordinates with directivity in response to a listener's location under the control of the user control unit; and a 3-D space modeling processor providing a sense of closeness and remoteness and spatial effects to each sound source object according to characteristics of a 3-D space, But Lin et al. discloses a three-dimensional video game in which the processor further includes: a motion processor analyzing a plurality of sound source data and the audio scene information, calculating a location of each sound source object with its trajectory ("*fig.1(38);page 2[0022] line 6-9*") and ; and a 3-D space modeling processor providing a sense of closeness and remoteness and spatial effects to each sound source object according to characteristics of a

3-D space ("*page 3[0024]*") and a 3-D sound localization processor providing each sound source object having a location defined on 3-D coordinates with directivity in response to a listener's location("*page 3[0026] line 1-4*")for the purpose of creating a positional enhanced audio data. Thus, taking the combined teaching of Fay et al. and obuku et al. and Meij et al. and now Line et al. as a whole, it would have been obvious for one of ordinary skill in the art to modify the teaching of Fay et al. and obuku et al. and Meij et al. as a whole, by incorporating the motion processor and 3-D space processor and 3-D sound localization processor for the purpose of creating a positional enhanced audio data.

The combined teaching of Fay et al. and Obuku et al. and Meij et al. and Lin et al. as a whole, fail to disclose of the user control unit to control the location of sound and modifying the trajectory. But, Katayama et al. disclose of the control data in memory which there is provided with a user control unit in which each particular data is control in memory ("*fig.10-11; page 2 line 45-67*") for the purpose of expanding functions of the audio apparatus, thus taking the combined teaching of Fay et al. and Obuku et al. and Meij et al. and now Katayama et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Fay et al. and Obuku et al. and Meij et al. as a whole, by incorporating the a user control unit in which each particular data is control in memory for the purpose of expanding functions of the audio apparatus.

The combined teaching, teaching of Fay et al. and Obuku et al. and Meij et al. and Lin et al. as a whole, fail to disclosed of the group object processor calculating a relative location of the respective sound source objects when a plurality of the sound source objects is grouped, However, Official Notice is taken that this limitation is commonly in the art, thus it would have been obvious for one of ordinary skill in the art to have the group object processor for purpose of providing additional positional audio enhance data.

Re claim 15, the system according to claim 9, however, the combined teaching of Fay et al. and obuku et al. and Meij et al. as a whole, fail to disclose of the user control unit includes an interface that controls each sound source object and the listener's direction and position, and receives the user's control for maintaining realism of sound reproduction in a virtual space to transmit a control signal to each unit, However, Katayama et al. disclose of the control data in memory which there is provided with a user control unit in controlling each storage data("*fig.10-11; page 2 line 45-67*") for the purpose of expanding functions of the audio apparatus, thus taking the combined teaching of Fay et al..and Obuku et al. and Meij et al. and now Katayama et al. as a whole, it would have been obvious for one of the ordinary skill in the art to modify the teaching of Fay et al. and Obuku et al. and Meij et al. as a whole, by incorporating the a user control unit for the purpose of expanding functions of the audio apparatus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-272-2222. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DP

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